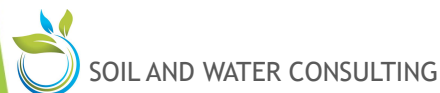




Client: El Dorado Golf and Beach Club  
Fall 2023 Report

	<u>9/20/22</u>	<u>10/2/23</u>
Humidity/Air Temperature	85%/82°	62%/91°
Greens Temperature	(avg)80.4°	(avg)87.1°
Fairways Temperature	(avg)81.4°	(avg)89.7°

<b>WATER</b>	<u>Acceptable Range For Water Sample</u>	<u>Hole #18 9/20/22</u>	<u>Hole #16 10/2/23</u>
pH	6.50	7.41	7.06
EC	<2.25 mmhos/cm	0.87	0.88
Sodium		125.30	119.80
Calcium	20 - 60 ppm	37.24	36.19
Magnesium	10 - 25 ppm	9.78	9.09
Potassium	5 - 20 ppm	15.32	14.73
Phosphorus	0.1 - 0.4 ppm	1.90	5.46
Nitrate	5 - 50 ppm	5.57	5.01
Sulfur	30 - 90 ppm	64.44	71.22
Bicarbonate	<120 ppm	191.96	177.30
Boron	<0.67 ppm	0.30	0.28
Chloride	<177 ppm	148.25	122.72



<b>TEES</b>	<u>Acceptable Range For Alkaline Soils Sample</u>	<u>1,9,18(avg) 9/20/22</u>	<u>8,11,16(avg) 10/2/23</u>
Organic Matter (Humus)	2 - 3%	1.79	1.63
Sulfur	12 - 16 ppm	11.33	22.33
Olsen - Phosphorus	13 - 20 ppm	21.33	23.33
Calcium - TEC of 6 - 12	1,000 lbs/acre	1,599.33	1,672.67
Magnesium	>7% base saturation or at least 200 lbs/acre	16.34%/230	14.63%/222.67
Potassium - TEC of 0 - 35	100 ppm	81.67	117.00
Manganese	>50 ppm	111.67	144.33

<b>FAIRWAYS</b>	<u>Acceptable Range For Alkaline Soils Sample</u>	<u>1,9,18(avg) 9/20/22</u>	<u>8,11,16(avg) 10/2/23</u>
Organic Matter (Humus)	2 - 3%	2.32	2.25
Sulfur	12 - 16 ppm	61.67	69.00
Olsen - Phosphorus	13 - 20 ppm	69.00	37.33
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,776.00	2,419.33
Magnesium	>7% base saturation or at least 200 lbs/acre	12.6%/312	15.33%/351.33
Potassium - TEC of 0 - 35	100 ppm	178.33	205.33
Manganese	>50 ppm	113.67	110.67

<b>GREENS</b>	<u>Acceptable Range For Alkaline Soils Sample</u>	<u>1,9,18(avg) 9/20/22</u>	<u>8,11,16(avg) 10/2/23</u>
Organic Matter (Humus)	2 - 3%	1.58	1.19
Sulfur	12 - 16 ppm	14.67	40.67
Olsen - Phosphorus	13 - 20 ppm	36.33	61.33
Calcium - TEC of 6 - 12	1,000 lbs/acre	1,460.67	1,580.00
Magnesium	>7% base saturation or at least 200 lbs/acre	17.65%/239.33	15.16%/220.67
Potassium - TEC of 0 - 35	150 ppm	122.33	138.33
Manganese	>50 ppm	153.00	212.33

<b>TEE</b>	<u>Acceptable Range For Saturated Paste Sample</u>	<u>1,18(avg) 9/20/22</u>	<u>8,11(avg) 10/2/23</u>
Nitrate - 419 bermudagrass	10 -15 ppm	5.30	8.05
Phosphorus	2 - 10 ppm	3.51	5.68
Potassium	40 - 100 ppm	19.64	26.73
Calcium	60 - 200 ppm	17.52	26.90
Magnesium	20 - 70 ppm	4.63	7.29
Sodium	0 - 30 ppm	85.09	158.61
Soluble Salts	<1,920 ppm	327.50	531.00
Bicarbonate	<60 ppm	75.91	130.91
Chloride	<1,000 ppm	57.50	126.00
SAR	<4%	4.66	7.00

<b>FAIRWAY</b>	<u>Acceptable Range For Saturated Paste Sample</u>	<u>1,18(avg) 9/20/22</u>	<u>8,11(avg) 10/2/23</u>
Nitrate - 419 bermudagrass	10 -15 ppm	12.20	23.20
Phosphorus	2 - 10 ppm	3.37	6.58
Potassium	40 - 100 ppm	63.56	68.89
Calcium	60 - 200 ppm	67.14	66.10
Magnesium	20 - 70 ppm	17.08	20.60
Sodium	0 - 30 ppm	359.30	413.84
Soluble Salts	<1,920 ppm	1,093.50	1,268.00
Bicarbonate	<60 ppm	196.86	184.80
Chloride	<1,000 ppm	296.00	330.00
SAR	<4%	9.78	10.61

<b>GREENS</b>	<u>Acceptable Range For Saturated Paste Sample</u>	<u>1,18(avg) 9/20/22</u>	<u>8,11(avg) 10/2/23</u>
Nitrate - Tifeagle Bermudagrass	3-5 ppm	12.30	17.85
Phosphorus	2 - 7 ppm	2.84	5.15
Potassium	25-40 ppm	19.41	33.61
Calcium	50- 75 ppm	15.03	53.21
Magnesium	15-30 ppm	4.55	12.64
Sodium	0 - 30 ppm	87.27	111.48
Soluble Salts	<1,000 ppm	375.00	557.00
Bicarbonate	<60 ppm	38.47	53.88
Chloride	<200 ppm	70.50	78.00
SAR	<4%	5.07	3.63

	PWG Limestone Bunker Sand 9/2023(in house)	50W Bunker Sand 8/2022	<u>USGA/Brown and Thomas Recommendations</u>
Silt and Clay	n/r	1.10	Less than or equal to 3%
Sand	n/r	96.00	Greater than or equal to 95%
Gravel	n/r	2.90	Less than or equal to 2%
Organic Material	n/r	0.30	
<b>Sieve #:</b>			
Fine Gravel 10	1.40	2.90	Less than or equal to 2%
Very Coarse Sand 18	22.90	32.40	Less than or equal to 15%
Coarse Sand 35	31.60	33.90	35+60+100+ 140 between 78% and 100%
Medium Sand 60	31.10	22.10	
Fine Sand 100	17.90	5.60	
Very Fine Sand 140	1.60	1.30	
Very Fine Sand 270	0.40	0.70	Less than or equal to 5%
Saturated Hydraulic Conductivity in/hr	n/r	51.2"	
Coefficient of Uniformity	n/r	3.52	
Recommended Depth	n/r	6.62"	
Ball Lie Rating	n/r	2.5	Greater than 2.4
Visual Classification	n/r	subangular to subrounded	Subrounded/Mixed or Angular

- The testing in the first column was provided by the sand supplier. The sample in the second column, was collected from a super sack bag. There is some “roughness” to sampling from a bag. That can explain the big differences in testing results.

### Nutrient Issues

		Calcium (%)	Magnesium (%)	Potassium (%)	Sodium (%)
TEE	8	65.42	14.79	4.62	11.82
TEE	11	67.20	14.80	4.88	9.46
TEE	16	65.49	14.31	4.72	11.00
FAIRWAY	8	59.80	14.05	4.92	18.01
FAIRWAY	11	66.47	16.22	5.88	8.12
FAIRWAY	16	62.28	15.74	5.88	12.03
GREEN	8	65.11	16.35	6.43	7.83
GREEN	11	68.46	14.31	5.39	7.61
GREEN	16	61.69	14.83	5.73	8.50
<b>Desired</b>		<b>68%</b>	<b>15%</b>	<b>5%</b>	<b>&lt;2.5%</b>

Calcium can be added to the greens in the form of gypsum at a rate of 10 pounds of product per 1,000 sq ft in October, November and December.

### Comments and Next Level Cultural Practices

- Better solubility of nutrients on the greens saturated pastes tests. The gypsum, Empac 7 flush and then 0-0-50 applications have helped keep the sodium levels down
- Sodium is a big issue on the fairways. When you combine naturally high sodium soil, sometimes poor irrigation coverage and drought that can happen when water runs low, the bermudagrass in the fairways will survive, but not always thrive
- The greens' expansions had rooted enough to aerify, mow and do normal maintenance practices. However, I am seeing where the recent wet and rainy weather could stop progress